

June 21, 1988.

B Davis

To the Editor:

Nicholas Wade's editorial (June 13), chiding scientists for their unhealthy claim of infallibility, attacks a straw man. Scientific research does eventually yield objective, reliable knowledge about the external world; but at the growing points it is an inefficient, often fumbling process. That is why experienced scientists do not get excited about uncorrected errors in the literature. Errors are inevitable, both in observation and in interpretation. Only the most important ones deserve formal retraction or refutation, while the others are bypassed. It is Mr. Wade who seeks infallibility, in his demand for a pure, consistent literature.

Mr. Wade further suggests that if researchers had to make their data freely available to others, without challenging motives or credentials, "it might encourage them to report their data objectively". But apart from the question whether any self-appointed inspector has a lien on a scientist's (or an editorial writer's) records and time, the very concept of reporting data objectively is simplistic. Most experiments do not work, and the data are likely to have a good deal of inconsistency until the experiments are improved. The scientist must therefore exert judgment in deciding which data to publish.

The editorial also discusses a recent Congressional hearing chaired by John Dingell. This hearing deserves a more critical analysis, for along with some cases of well authenticated fraud it has set a dangerous precedent by considering a new accusation of improper publication, based on a dispute between a young investigator and her mentors (including a Nobelist). Several senior investigators, whom she consulted, all concluded that the disputed paper fell well within the range of acceptability; any error that might be

present would later be settled by the results of further experimentation. Most researchers in training would have accepted this resolution, but this one, with a strong conviction about purity in the literature, did not; hence the issue finally landed in the hearing.

Mr. Wade recognized that Congressional hearings are not the ideal forum for adjudicating scientific claims. But this is quite an understatement. For one thing, we should not devalue whistle-blowing over fraud by confusing it with disputes over differences in judgment. (This issue is even more important for scientists than for congressmen, because fraud involves not only taxpayers' money but the very foundations of the search for objective knowledge.) Second, by publicizing only one side of this dispute the hearing damaged reputations without due process -- and due process is a precious tradition even if it is not legally required of Congressional hearings. Finally, by discussing only fraud and incompetence, and ignoring the ambiguity that is inevitable in even the best research, both the hearings and the editorial have given the public a distorted picture of the scientific process.

To laymen the apparently casual attitude of scientists toward honest error may seem sloppy. But it has evolved as a pragmatic, effective solution -- with passionate battles, sometimes lasting years, over contradictory findings or interpretations. And despite the resulting imperfect literature, biomedical research is now flourishing as never before. It has done so through generous external support and through the tradition of autonomous regulation within the scientific community. To be sure, some institutions have treated real cases of fraud too casually, and so legislators are justified in pressing for a more vigorous response. But we must also preserve the tradition of trust and openness in science. We will not advance the field by treating the rare cases of fraud as a major problem, by using the heavy

hand of legislation or of governmental regulation to try to contain fraud, or by confusing it with normal ambiguity.

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